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| 09/940,195 | 08/27/2001 | Rodney L. Miller | 83262/N-R | 4905 |

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EXAMINER

DUDDING, ALFRED E

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
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2853

DATE MAILED: 06/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/940,195

Applicant(s)

MILLER ET AL.

Examiner

Alfred E. Dudding

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 27 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 41 and 42 is/are allowed.
- 6) ☒ Claim(s) 1-5, 15-17 and 36 is/are rejected.
- 7) ☒ Claim(s) 6-14, 18-35 and 37-40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
 - a. page 1, lines 7 and 10, please supply the application serial number.
 - b. page 7, line 27, change “dots, 10, to” to --dots to--.
 - c. page 8, line 7, change “printed” to --printhead--
 - d. page 10, line 29, change “Figure 5” to --Figure 5A--.

Appropriate correction is required.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:
 - a. Figure 5, reference character 21 is not mentioned in the specification,
 - b. Figure 7, reference characters 184 (Pass Table Processor block) and 185 (Electrical circuitry block) are not mentioned in the specification,
 - c. Figure 8, reference character 210 (Coverage Factor LUT block) is not mentioned in the specification.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “20” has been used to designate both nozzle in Figure 5 and a grid line in

Figure 4. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 27 objected to under 37 CFR 1.75 as being a substantial duplicate of claim 23. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C.

122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 1 – 4, 15 – 17, and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Asano (U.S. 6,343,846 B1).

Asano discloses an ink jet printer apparatus for printing on a receiver medium comprising at least one nozzle connected to a supply of ink; and wherein a carrier supports the at least one nozzle for movement relative to the receiver medium so that the nozzle is moved across the receiver medium with plural recording passes to record an image swath of pixels on a reference raster during each such recording pass, Column 1, lines 46 – 59, Column 3, lines 24 – 30; a controller, Figure 1, element 110, responsive to a first signal related to media type, Figure 1, element 120 (paper type selection switch), for generating a second signal for determining for the nozzle an ink drop volume to be deposited at each of plural pixel locations on the receiver medium by that nozzle including a decision of no drop to be deposited at some of the pixel locations, at least some of the second signals determining at least three different drop volumes including a no drop decision; an actuator associated with said nozzle and responsive to said second signal for controlling said nozzle to deposit at a respective pixel location a respective drop volume to be deposited in accordance with said second signal so that the printer prints at least three different drop volumes including no drops at different pixel locations on the medium, (Figure 8 shows a table with seven drop volumes including a no drop ejection index related to the gradation level of printing) in response to a multitone pixel value signal, generates a third signal related to the drop volume related value (the second signal is represented by the line from

element 120 of Figure 1 to the printhead driver, element 111, the third signal is represented by the line from the system controller, element 101).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano (U.S. 6,343,846 B1) in view of Matsubara et al. (U.S. 5,831,642 A).

Asano discloses an ink jet printer apparatus for printing on a receiver medium comprising at least one nozzle connected to a supply of ink; and wherein a carrier supports the at least one nozzle for movement relative to the receiver medium so that the nozzle is moved across the receiver medium with plural recording passes to record an image swath of pixels on a reference raster during each such recording pass, Column 1, lines 46 – 59, Column 3, lines 24 – 30; a

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controller, Figure 1, element 110, responsive to a first signal related to media type, Figure 1, element 120 (paper type selection switch), for generating a second signal for determining for the nozzle an ink drop volume to be deposited at each of plural pixel locations on the receiver medium by that nozzle including a decision of no drop to be deposited at some of the pixel locations, at least some of the second signals determining at least three different drop volumes including a no drop decision; an actuator associated with said nozzle and responsive to said second signal for controlling said nozzle to deposit at a respective pixel location a respective drop volume to be deposited in accordance with said second signal so that the printer prints at least three different drop volumes including no drops at different pixel locations on the medium, (Figure 8 shows a table with seven drop volumes including a no drop ejection index related to the gradation level of printing) in response to a multitone pixel value signal, generates a third signal related to the drop volume related value (the second signal is represented by the line from element 120 of Figure 1 to the printhead driver, element 111, the third signal is represented by the line from the system controller, element 101).

Asano fails to teach the claimed invention of a controller that includes a print masking table that stores decision values for determining whether or not a drop is to be deposited by each nozzle at a respective pixel location on the reference raster during a respective recording pass.

Matsubara et al. discloses masking tables, Figure 3, elements 11 and 12, for stores decision values for determining whether or not a drop is to be deposited by each nozzle at a respective pixel location on the reference raster during a respective recording pass.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the invention of Matsubara et al. in the invention of Asano in order to control printhead heat and reduce printing artifacts and thereby increase quality of printouts.

Allowable Subject Matter

10. Claims 6 – 14, 18 – 35, and 37 – 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

a. A search of prior art did not cite an ink jet printer wherein the apparatus includes a communication channel for receiving inputs for a job of a selected one of plural recording resolutions, a selected one of plural media types and optionally a selected one of plural inks for processing the job and the controller, in response to such job inputs, generates a fourth signal representing a first code value from a table of plural number of selectable code values, the number of selectable code values being substantially less than the number of combinations of plural recording resolutions, plural media types and optionally plural inks possible for selection for the job and the apparatus further includes either the same communication channel or a separate communication channel for receiving inputs of a fifth signal representing said selected one of plural recording resolutions, a selected one of plural bits per pixel, a selected number of band passes to be used to print the image swath on the reference raster and optionally a selected number of directions in which printing is to occur and in response to the fourth and fifth signals generates table values for the pass table as claimed in the limitations of claims 6 and 18.

b. A search of prior art did not cite an ink jet printer wherein there are a plurality of nozzles and the controller includes a table of drop volume related values for printing on the reference raster and a different table of drop volume related values for printing on a shifted raster, and wherein the shifted raster represents, for a predetermined printing resolution, a grid pattern of possible pixel locations on the recording medium that are shifted relative to each pixel location on the reference raster by an amount less than the spacing between adjacent pixel locations on the reference raster in the first direction and by an amount less than the spacing between adjacent pixel locations on the reference raster in a transverse direction to the first direction, and wherein, during a pass movement of the nozzles relative to the medium in a predetermined direction, the controller controls the nozzles to print pixels either on the reference raster or the shifted raster but not both during any particular pass as claimed in the limitations of claims 10, 14, 23, 27, 30, and 37.

c. A search of prior art did not cite a method wherein job input signals are received corresponding to a selected one of plural recording resolutions, a selected one of plural media types and optionally a selected one of plural inks for processing the job and in response to the job inputs a code value is generated from a plurality of selectable code values, the number of selectable code values being substantially less than the number of combinations of plural recording resolutions, plural media types and optionally plural inks possible for selection for the job, the code value being used to identify a table of values associated with drop volumes used for printing as claimed in the limitations of claims 18 and 33.

11. Claims 41 and 42 are allowed.

a. The primary reason for the allowance of claims 41 and 42 is the inclusion of the

method steps of processing image data for a print job to be printed by an ink jet print head, the method comprising: receiving inputs for the job of a selected one of plural recording resolutions, a selected one of plural media types and optionally a selected one of plural inks for use in printing the job; in response to the inputs generating a code value from a table of a plural number of selectable code values, the number of selectable code values being substantially less than the number of combinations of plural recording resolutions, plural media types and optionally plural inks possible for selection for the job. It is these steps found in each of the claims, as it is claimed in the combination, that has not been found, taught, or suggested by the prior art of record which makes these claims allowable over the prior art.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Harris et al. (U.S. 5,949,453 A) discloses an ink jet printer using a plurality of inks and printing in different resolutions, Column 2, lines 27 – 34. Harris et al. fail to teach the claimed invention of generating a code value from a table of a plural number of selectable code values, the number of selectable code values being substantially less than the number of combinations of plural recording resolutions, plural media types and optionally plural inks possible for selection for the job.

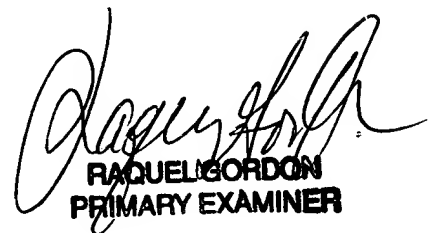
b. Robert et al. (U.S. 5,943,072 A) discloses an ink jet printer capable of stepping the media in a half-dot pitch distance and capable of moving the printhead in a similar amount, Abstract, and Figure 2. Robert et al. fail to teach the claimed invention wherein during a pass movement of the nozzles relative to the medium in a predetermined direction, the controller

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controls the nozzles to print pixels either on the reference raster or the shifted raster but not both during any particular pass.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alfred Dudding whose telephone number is (703) 308-6082. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow Jr., AU 2853, can be reached at (703) 308-3126. The fax phone numbers for this Group are (703) 305-3422 and (703) 308-5841.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703) 308-0956.



RAQUEL GORDON
PRIMARY EXAMINER

Alfred Dudding

AD
5-27-02